TECHNICAL REVIEW DOCUMENT
for
MODIFICATION TO OPERATING PERMIT 96OPAD130

Public Service Company of Colorado – Cherokee Station
Adams County
Source ID 0010001

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October - November 2010

I. Purpose:

This document establishes the decisions made regarding the requested modification to the Operating Permit for Public Service Company of Colorado's Cherokee Station. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division's analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the requests for modification submitted to the Division on October 19 and 27, 2010, comments on the draft permit received via e-mail on November 4, 2010, additional information submitted on July 14, 2010, e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

The Operating Permit for Cherokee Station was issued on February 1, 2002 and was renewed on April 1, 2010. Public Service Company of Colorado (PSCo) submitted requests to modify the permit on October 19 and 27, 2010. As required by Section II, Condition 1.1.2 of the permit, the source has submitted a request to incorporate the proposed baseline opacities in the permit as the indicator ranges for the 24-hour opacity specified in the compliance assurance monitoring (CAM) plan (Appendix H of the permit).

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications "are not otherwise required by the Division to be processed as a significant modification" (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that "every significant change in existing monitoring permit terms or conditions" be processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.A.7.f). The current Title V permit (Section II, Condition 1.1.2) requires the permittee to submit a minor modification application to incorporate the baseline opacity values into the CAM requirements as the indicator ranges for the 24-hour average opacity. The renewal permit (which went through public comment and 45-day EPA review) already specified that the source would monitor 24-hour average opacities as part of their CAM plan and specified the method to set the 24-hour average opacity indicator ranges. Therefore, the Division does not consider that incorporating the actual value of the 24-hour average opacities to be a "significant change in existing monitoring".

III. Modeling

The requested modification does not affect emissions from the facility (i.e. no increase in emissions as a result of this modification); therefore, modeling is not required.

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source's requested modifications as follows:

24-Hour Average Opacity Indicator

The source has conducted the particulate matter performance tests and determined the 24-hour average baseline opacities and has requested that they be included in their permit. The Division included the 24-hour average opacity values in the permit as follows:

- The baseline opacity levels were included in Condition 1.15.1.2 (CAM requirements).
- The baseline opacity levels were included in the CAM plan table (Appendix H)

Sodium Silos

During their review of the draft permit, the source indicated that the permit inappropriately identifies five sodium silos but there are only three. Two silos were apparently removed when the lime-spray dryer was installed on Unit 4. Therefore, the following changes were made to address this comment:

- Revised the description in Section I, Condition 1.1 and the tables in Section I,

Condition 6.1 and Appendices B and C to indicate there are only three silos.

- Revised the table description in Section II.6 for P005 to indicate there are only three sodium silos.

Section II.16

During their review of the draft permit, the source indicated that the summary table for P010 (ball mill slakers) lists incorrect permit condition numbers. These errors were corrected.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Cherokee Station Operating Permit with the source's requested modifications. These changes are as follows:

Section I - General Activities and Summary

- Removed Section II, Condition 1.11 from the list of state-only requirements in Section 1.4.

- Removed the third column labeled "Facility ID" in the table in Condition 6.1, as the ID number is the same as that in the first column. The first column was relabeled "Emission Unit No./Facility ID".

Section II.1 – Coal-Fired Boiler

- Included the PM emission factor from the latest performance tests (conducted in August and September 2010) in the summary table (Condition 1.2). In addition, the text portion of Condition 1.2 was revised to indicate that the emission factors from the "most recent" performance tests are to be used to calculate PM emissions.

- Condition 1.11 was revised to remove the state-only lead standard of 1.5 $\mu g/m^3$. Since EPA promulgated a more stringent national ambient air quality standard for lead in 2008, the Division removed the state-only lead requirement from Colorado Regulation No. 8, Part C. Therefore, the requirement is being removed from the permit. Note that the lead NAAQS will not be included in the permit as NAAQS are not considered applicable requirements and as such are not

included in Title V permits.

Section II.12 – Lead Periodic Monitoring Requirements

- Removed Condition 12.1 (Reg 8 lead standard).

CAM Requirements (Section II, Condition 1.1.2 and Appendix H)

The Division removed the sentence indicating that startups, shutdowns and malfunctions can be excluded from the 24-hr average opacity from Section II (Table, Section III.f – averaging time for indicator 1 (visible emissions)) of the CAM plan. The Division had intended to remove the language in the CAM plan that excluded startup, shutdown and malfunction periods from the 24-hr average opacity prior to issuance of the renewal permit; however, this change was not made in all parts of the CAM plan.

Since the renewal permit was issued for this facility, the Division has considered that additional revisions to the CAM plan language are warranted and is making the appropriate changes with this modification, as follows:

Since the purpose of this modification is to include the baseline opacity values in the permit (as required by Condition 1.1.2), the Division will remove the language in Condition 1.1.2 related to the initial performance test (submitting an application to incorporate the baseline opacity) and instead has included a note indicating that the initial tests have been completed. Note that the permit still requires that an application to incorporate the proposed baseline opacities from any subsequent tests be submitted within 45 calendar days of the test.

In addition, the Division has revised some language in the justification of the 24-hour opacity indicator to clarify that the 24-hour opacity indicator is not presumptively acceptable monitoring. An initial draft of the renewal permit for a similar facility (PSCo – Hayden) relied on the compliance provisions (i.e., using a 24-hour average baseline opacity) required for new (constructed after February 28, 2005) electric utility steam generating units subject to particulate matter fuel based emission limitations (i.e. units of lb/mmBtu) in 40 CFR Part 60 Subpart Da as a CAM indicator. However, based on comments submitted by PSCo during the pre-public comment review period for that facility's renewal permit, the method to determine the 24-hr baseline opacity was revised but the CAM plan justification was not. Since the Division used virtually the same CAM plan and language as that facility, the CAM plan language for this permit needs to be revised.

Finally, in their comments on the other Title V permit, EPA indicated that further justification of the 15% opacity indicator was necessary. The Division requested that the source provide additional information to justify the 15% opacity indicator and in response to that request, PSCo submitted information on July 14, 2010 indicating that the 15% opacity indicator was based on operating experience. PSCo's submittal indicated that sudden spikes in opacity conditions is a good indicator that something has occurred within the baghouse controls system that could potentially be affecting

baghouse performance. PSCo indicated that based on their years of operating experience an opacity spike of 15% opacity for 60 seconds or more is generally an indicator that there is a problem with the baghouse and that an opacity spike below that set point would pick up spikes in opacity that are seen with normal operation. The Division agrees that the 15% indicator is appropriate, as it is above the expected normal opacity levels seen in coal-fired units with well operated baghouses but is below the allowable opacity limit and as such is expected to be a good indicator of problems with the baghouse. Therefore, the Division has added language to the CAM Plan (Appendix I) in Section III.c - Justification, Rational for Selection of Indicator Ranges to further justify the 15% opacity indicator.

In addition, the last three sentences in Section III.C - Justification, Rational for Selection of Indicator Ranges were replaced with language noting that the initial performance tests were conducted and that the source was monitoring the 24-hour average opacities within 180 days of renewal permit issuance.

Section V – General Conditions

- Added a version date.
- The title for Condition 6 was changed from “Emission Standards for Asbestos” to “Emission Controls for Asbestos” and in the text the phrase “emission standards for asbestos” was changed to “asbestos control”.
- General Condition 29 was revised by reformatting and adding the provisions in Reg 7, Section III.C as paragraph e.

Addendum to the Technical Review Document prepared for the April 1, 2010 Renewal permit

Recently the Division has been reviewing Title V Petitions and Orders related to coal-fired power plants in an effort to be proactive on some of the issues. As part of that effort, the Division considers that although the particulate matter monitoring specified in the permit is part of a three-prong approach (CAM, performance testing and baghouse maintenance), this approach was not specifically addressed in the technical review document for the Title V renewal permit (note that prior to issuance of the renewal permit, particulate matter monitoring was based on performance tests and baghouse maintenance). Therefore, this language is intended to describe the three prong approach used to monitor compliance with the particulate matter standards.

The first prong of the particulate matter monitoring approach is performance tests, which are a direct indicator of compliance with the particulate matter standard and as such is a readily apparent monitoring tool. As indicated in the table below, past performance tests have indicated that the particulate matter standards have been met.

Unit	Particulate Matter Emissions (lbs/MMBtu)		
	Performance Test Result		Emission Limitation
	2003	2010	
Unit 1	0.00971	0.034	0.1
Unit 2	0.00937	0.004	0.1
Unit 3	0.01362	0.003	0.1
Unit 4	0.00624	0.0033	0.1

A baghouse is a relatively passive control device, in that it acts as a filter, as long as exhaust gas passes through the baghouse particulate matter entrained in the exhaust is captured. Unlike other control devices, such as a scrubber, the effectiveness of a baghouse cannot be increased by simply providing more reagent. However, the effectiveness of the baghouse can be decreased if bags are torn or plugged, hence proper baghouse operation and maintenance is essential to ensuring the baghouse operates properly and effectively removes particulate matter.

As indicated in the preamble to the CAM rule (62 FR 54918):

> The general purpose of the monitoring required by part 64 is to assure compliance with emission standards through requiring monitoring of the operation and maintenance of the control equipment and, if applicable, operating conditions of the pollutant-specific emissions unit…..Logically, therefore, once an owner of operator has shown that the installed control equipment can comply with an emission limit, there will be a reasonable assurance of ongoing compliance with the emission limit as long as the emissions unit is operated under the conditions anticipated and the control equipment is operated and maintained properly.

The CAM monitoring sets specific indicators that are used to monitor the operation of the control device. Under the CAM requirements, ranges are specified for the indicators and operation of the unit outside of the indicator range is subject to investigation, and if applicable, corrective action, in addition to reporting requirements.

The performance tests provide direct evidence of compliance and provided the baghouse is properly operated and maintained, continued compliance with the standard is expected. The CAM requirements serve as specific indicators that the baghouse is operated properly. As a result all three prongs together are appropriate measures to assure compliance with the particulate matter emission limitations.